Sustainable Agriculture Strategies for Hawaii

A series on current developments in sustainable agriculture research and education

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WHAT IS SUSTAINABLE AGRICULTURE?

INTRODUCTION

Sustainable agriculture is a strategic goal, not a specific practice or set of practices. It is an approach to agricultural production that is designed within the context of a social, business and biophysical environment. As such, sustainable agriculture is necessarily dynamic, open to change as one's perception of the environment changes. From the perspective of the individual producer/manager, sustainable agriculture may be viewed as the ongoing process of bringing his/her particular farm business organization into alignment with the contextual environment.

DEFINITIONS

"Sustainable agriculture" is one of the most widely used terms in agriculture today. It may also be the least understood. It is used extensively in the 1990 Farm Bill and by those who advertise synthetic fertilizers, by "organic farmers" and by land-use policy makers for and against various organizational structures (e.g., large, highly capitalized commercial farms vs. small, family, often part-time farms vs. golf courses). Even though the positions of those who use the term may be diametrically opposed, the term is rarely if ever used in a pejorative sense. It has developed a set of connotations that is fast coming to rival "motherhood and apple pie." The rhetorical intent is often to demonstrate convincingly that whatever one practices or advocates is sustainable agriculture. The created aura of sustainability is intended to confer social acceptance on whatever is described or advocated.

Those who use the term probably believe they have a clear idea as to what they mean. However, they may only be using the positive connotations or using the term to refer to a selected practice. The problem is that "sustainable agriculture" usually will not mean the same thing to every listener. The source of the communication problem lies in the confusion between the positive connotations and the many meanings people assign to the term. The key to understanding the sustainable agriculture concept is to recognize that sustainability is a strategy. Particular practices are only implementations of this strategy.

PRODUCTION PRACTICES

Sustainable agriculture encompasses a wide range of possible production practices, but it nevertheless is not merely a practice; it remains a goal. The practices that may fall within the category of sustainable range from strictly "organic" to conventional farming using lower inputs. Until recently "low input sustainable agriculture" (LISA) was the preferred term, but LISA has now been replaced by "sustainable agriculture." For example, the USDA's LISA program is now titled Sustainable Agriculture Research and Education (SARE). LISA was simply an unacceptable misnomer. First, it was too restrictive. For example, "organic" agriculture involves a fundamentally different production system, not simply reduced chemical inputs. Furthermore, LISA overemphasized a lower level of resource use, when in fact the particular problem at hand may have required greater capital inputs or increased feed or fertilizer. In those cases where a reduced resource input was appropriate, this reduction usually required that another resource, such as management or labor or capital, be increased. What had originally been intended by the term was reduced off-farm inputs.

While it is too late to resuscitate the misused term, the widespread reaction to LISA served to develop a useful discussion and lead to a greater understanding that the essence of the LISA idea was sustainability.

Given the wide range of people using the sustainability terminology in many different ways to denote different practices, it is not surprising that "sustainable agriculture" has developed connotations that cause the listener to react before he/she determines exactly what is intended in the current context. For example, some advocates of "organic farming" often restrict "sustainable agriculture" to refer to their interpretation of what is organic. Organic growers for years have criticized the land grant universities for not developing research agendas or extension programs relevant to their needs. Universities were portrayed as focusing on short-term problems or relying solely on petroleum and agrichemical-based answers to commercial agricultural problems. In short, the Congress, the USDA, and the land grant system were depicted as institutions not interested in sustainable agriculture.

EXTENSION AND RESEARCH

Those within the universities often argued that, on the contrary, through their extension and research programs, they have always been doing sustainable agriculture. The Cooperative Extension System (CES) is not a "service" institution; rather, its essence is revealed in its role as a component of a comprehensive educational institution. Teaching a producer how to solve a problem for him/herself, as opposed to solving it for the producer, is far more expensive and more time-consuming, but it is also, by its very nature, sustainable. The goal of university extension efforts, as opposed to private consultancy services, is to enable the producer to develop and implement sustainable strategies independently. Furthermore, many of the specific programs, most notably the Integrated Pest Management (IPM) program, have long advocated more sustainable agricultural practices.

The origin of the university agricultural research agenda is complex. It is directed in part by federal, state, and private funding, but its focus is always on solving problems that it can deal with more effectively than can the private sector. Ultimately it is the link with Cooperative Extension that makes university-based agricultural research unique. The research agenda is dictated in large part by requests directly from the field, from the ever-changing needs of progressive producers. Research results are in turn disseminated through the extension system. And ultimately it is Cooperative Extension's research-based link that makes it unique among those organizations delivering information to producers.

CONCLUSION

Sustainable agriculture is distinguished by four characteristics: a longer planning time-horizon, a balance between economic and ecological concerns, a balance between social (consumer) and production economic concerns, and acceptance that maintaining these balances is inherently dynamic.

Planning Time-Horizon

A key element of the definition is the time dimension. Sustainability is long-term viability. It has been said that sustainable agriculture is farming with a 50-year horizon as opposed to the one- or two-year horizon characteristic of many producers and legislators. It is farming your farm the way you would have your neighbor farm the neighboring land. Sustainable agriculture strategies are not a "quick fix." In times of extreme farm financial distress, for example in the mid–1980s, the time horizon tends to shorten dramatically. It may shorten to a month-by-month or day-by-day survival effort; concern with the long-term costs and benefits recedes. To some degree, the late 1980s to early 1990s energy driving the wide interest in sustainable agriculture may be interpreted as a reaction to the preceding short-sighted policy and practices.

Economic-Ecological Balance

If agriculture* is understood to be commercial agriculture, sustainable agriculture is agricultural production that effectively balances the economic and environmental components, that is,

* "Agriculture," commonly understood to mean the production of food and fiber, can also be interpreted broadly to include both commercial production of food and fiber and commercial provision for recreation. The latter group of businesses often uses some of the same resources as food producers. Examples of this diverse agricultural group would thus include horse farms, golf courses, and landscapers. The key is use of resources for commercial production. Backyard or hobby producers ostensibly use the resources for similar productive purposes and share a similar environment, but since these producers are not concerned about the economics involved, they have effectively eliminated a major component of the complex sustainability equation.

sustainable agriculture is financially viable while having a minimal adverse effect on the overall natural environment. Agricultural production is not sustainable without acceptable levels of profitability, liquidity, solvency, and risk. Producers implementing a strategy of agricultural sustainability will optimize profitability, etc., given the ecological constraints. The SMART–FRMS (Sustainable Management of Agricultural Resources for Tomorrow–Farm Resource Management System) computer program is a decision-aid tool that helps producers develop strategies that maximize their financial returns while minimizing adverse ecological impacts.

Social-Economic Balance

Responsible producers have always desired to provide nutritious, safe food products in a way that is safe for themselves, their workers, and their neighbors. Over the past decade, however, the rise in consumer awareness and political power has made it absolutely essential that in order for agricultural production to be sustainable, the provision of food, fiber, and recreation must be safe. Not only must the production and the product be safe, they must be perceived as being safe.

The recent Alar scare, which received intense national coverage, has become a classic example. To this day, there has been no reliable scientific evidence that apples treated with Alar are carcinogenic, and Alar was never legally removed from the market. Despite these facts, widespread fear that treated apples might be unsafe effectively eliminated the market for Alar-treated apples in less than two years. In short, social pressure quickly caused production of Alar-treated apples to become unsustainable. Most apple growers suffered financial loss during this period because they failed to interpret their social-business environment properly and consequently failed to modify their own business organizations so as to realign them with their changing environment. Those few producers who recognized that when it comes to food, consumer perceptions take precedence over research-based reality, and who were able to develop and implement an alternative production and marketing strategy were able to benefit financially. This case study is especially dramatic because the time-frame is compressed. However, the underlying principles of sustainability illustrated here are to be found in all agricultural production.

Dynamic Process

Sustainable agriculture is the endless process of attempting to attain a balance between the conflicting, ever-changing social and ecological demands in one's business environment and the financial demands one imposes upon one's business enterprise. One rarely if ever achieves even a momentary true balance, but one must continue to strive for the unattainable balance in order to be sustainable. The farm manager must adequately comprehend his/her environment and simultaneously must adequately understand and control his/her business organization. Production will be sustainable to the degree that the organization of production can be modified to realign it with the changing environment.

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